

Relationships Among the Knowledge, Efficacy, and Practices Instrument, Color-Blind Racial Attitudes Scale, Deamonte Driver Survey, and Defining Issues Test 2

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Abstract: Concordance studies indicate the degree to which instruments measure the same or similar constructs or something different. The aims of this study were to identify the factor structure of the Deamonte Driver Survey and determine the relationship between the Deamonte Driver (a measure of social class stereotyping), the Defining Issues Test 2 (DIT2; a measure of ethical sensitivity), the Color-Blind Racial Attitudes Scale (CoBRAS; a measure of racial stereotyping), and the Knowledge, Efficacy, and Practices Instrument (KEPI; a measure of cultural competence). The results showed a three-factor solution for the Deamonte Driver Survey and significant relationships between CoBRAS and DIT2 subscales and between CoBRAS and Deamonte Driver subscales. Significant relationships between the measures and exploratory variables, underrepresented minority status, age, citizenship, marital status, political stance, English as a first language, and gender were found. The lack of a significant relationship between the KEPI and Deamonte Driver, DIT2, or CoBRAS subscales suggests that the KEPI is measuring a unique construct. These findings showed how these scales contributed to the assessment of cultural competence among dental students and faculty.

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Concordance studies are useful in determining the potential relationships among instruments that are administered at the same time. Findings can indicate the degree to which instruments are measuring the same or similar constructs or if they are measuring something different.¹ Measuring the degree to which scores on one instrument relate to another when simultaneously administered or to some other criterion provides evidence of concurrent validity. The absence of concordance holds meaning for researchers interested in instrument development since not finding an association between two measures suggests that a particular instrument is likely measuring a unique construct.

Our interest in this study emerged from national calls emphasizing the need to increase cultural competence among predoctoral dental students and related institutional efforts to revise dental school curricula. Many authors have urged a response to the widespread disparities in access to medical and oral health care and have recommended nurturing the development of culturally competent and socially

responsible practitioners.²⁻⁷ Two Institute of Medicine reports,^{8,9} changes in Commission on Dental Accreditation standards,^{10,11} and Berwick et al.¹² also emphasize these issues. Logan et al. note that optimal dental student preparation occurs in environments that facilitate “culturally competent health care; recognition of health care disparities [and] development of solutions; meeting the health care needs of dentally underserved populations; and . . . professional attributes [such as] altruism, empathy, and social accountability needed [for] . . . effective care in a multidimensionally diverse society.”¹³ For the U.S. health care system to improve patient experience associated with quality and satisfaction, to improve population health, and to reduce health care per capita costs, these skills are essential.¹² Exemplifying the need to improve social responsibility is the finding that dental practitioners tend to hold somewhat negative attitudes towards the poor and underserved.^{13,14} These attitudes and unconscious biases, which are not unique to dental practitioners, can impede not only life-saving but routine treatment as well.¹⁵

Over the past several years, we and our colleagues have introduced curricular interventions in an effort to help students develop an awareness of unconscious bias. Students often reject biased behavior in others, yet resist recognizing biased behaviors in themselves.¹⁶ Both implicit and explicit bias impacts individual behaviors, attitudes, and feelings about others whose culture is different. One strategy used to reduce forms of persistent and unintentional bias is to provide students with increased opportunities to interact with individuals different from themselves.^{17,18} Strategies that integrate reflective practice have also been found to mitigate implicit bias and prevent its activation.¹⁷ One way to reduce bias is by increasing students' skills to interact confidently and contextually with patients who are culturally different from themselves.^{18,19} A systematic review of the literature reported that cultural competence training improved health care professionals' knowledge, attitudes, and skills and patients' ratings of care.²⁰ In previous studies, researchers have explored how reflective writing and interviews help students develop a baseline awareness of their own cultural competence and whether conducting interviews with individuals unlike themselves would result in expressions of personal change.^{21,22} Findings from those studies showed that, in comparison to their cultural and family lives, students demonstrated consciousness raising and new awareness of implicit bias.

In this study, we used multiple measures to assess if and to what degree curriculum interventions have affected students' outcomes associated with ethical sensitivity, racial and social class stereotypes, and cultural competence. Test measures used were the Defining Issues Test2 (DIT2), a measure of ethical sensitivity;²³ the Color Blind Racial Attitudes Scale (CoBRAS), a measure of racial stereotypes;²⁴ the Deamonte Driver Survey, a measure of social class stereotypes;¹⁴ and the Knowledge, Efficacy, and Practices Instrument (KEPI), a measure of cultural competence.⁴

The DIT2 outcome scores provide a prototype of the drivers that typically guide an individual's decision making when grappling with complex social issues. Participants read brief vignettes about a social problem and then decide what is important in responding to that problem. There are no wrong or right answers. The results indicate participants' initial position on a dilemma and their rating and rank of 12 arguments they consider important in deciding what to do. Arguments generally cluster into three groups that appeal to 1) personal interests (PI), mak-

ing decisions in which promoting self-interest is the primary guidance; 2) maintaining norms (MN), making decisions that are consistent with what society expects; and 3) post-conventional thinking (P), making decisions based on ethical principles associated with the good of humanity that promote the societal good rather than relying on social conventions, expectations, or legal contracts.²⁵ Participants are also asked to identify their political affiliation on a five-point political conservatism scale, ranging from 1=liberal to 5=conservative. High scores represent political conservatism. Religious orthodoxy, another variable on which participants rank themselves, is a measure of those who believe or reject the literalness of Christian tenets.²³

The CoBRAS is a 20-item measure that assesses cognitive aspects of color-blind racial attitudes.²⁴ Using orthogonal rotations, the data fit a three-factor solution. The three factors are racial privilege, institutional discrimination, and blatant racial issues. CoBRAS shows an acceptable reliability estimate, $\alpha=0.72$. In the initial validation study, concurrent validity was found with the Global Belief in a Just World Scale, the sociopolitical scale of the Multidimensional Belief in a Just World Scale, the three CoBRAS factors, and the total CoBRAS.²⁴

The lack of strong associations between the Marlowe Crowne Social Desirability Scale and the CoBRAS suggests a lack of discriminant validity. Using gender as the independent variable and the CoBRAS factors as dependent variables, women scored significantly lower on all three factors, providing evidence of criterion-related validity.²⁴ Scores on the first two factors, racial privilege and institutional discrimination, ranged from 7 to 42, and scores on blatant racial issues, the third factor, ranged from 6 to 36. A two-week test-retest reliability estimate was 0.80 for racial privilege and institutional discrimination, 0.68 for the CoBRAS total, and 0.34 for blatant racial issues. Additional tests of concurrent validity between CoBRAS and the Quick Discrimination Index (QDI) showed significant negative correlations (-0.25 for QDI/women's inequality to -0.83 CoBRAS total and QDI/general cognitive). Significant positive correlations ranging from 0.36 to 0.55 were seen between the CoBRAS and the Modern Racism Scale (MRS).

In one study, a significant interaction effect showed that the CoBRAS was positively associated with the white psychology students' impressions of symptom severity for factious black compared to white clients,²⁶ suggesting that racial attitudes af-

affected their impressions of black clients. CoBRAS was significantly associated with the psychological false consciousness measures: blaming African Americans for their economic and social disparities, belief in a hierarchical system justified by inferior and superior social groups, and internalized racial stereotypes of blacks.²⁷ Ahwad et al.'s and Worthington et al.'s studies confirmed a positive relationship between CoBRAS and the MRS: CoBRAS predicted students' perceptions of racial ethnic campus culture (RECC) and general campus climate (GCC).^{28,29} Students' unawareness of racial privilege in those studies was associated with positive perceptions of RECC and GCC.

The Deamonte Driver Survey measures factors that influence dentists' likelihood of participating in Medicaid.¹⁴ In the first scale on this survey, perceived barrier items ask dentists to rate how important each barrier (problem) is relative to their participation in Medicaid; the social responsibility scale, the second scale, asks participants to rate items pertaining to economics, professionalism, and individual choice. Logan et al. reported a logistic regression analysis of findings based on a sample of 772 Medicaid and non-Medicaid dentists in Florida to test the association between the scales and Medicaid participation.¹⁴ However, in their study a factor structure for the Deamonte Driver was not reported.

The KEPI measures three constructs: knowledge of diversity, culture-centered practice, and efficacy of assessment.⁴ Knowledge of diversity measures cognitive understanding of diversity. Culture-centered practice measures participants' perceived ability to provide culture-centered patient care. Efficacy of assessment measures participants' perceived skills in providing culturally competent patient-centered communication. This scale was validated in another study with a national sample of 381 second-year dental students.⁴ Findings from that study showed an acceptable internal consistency reliability of 0.87. The confirmatory factor analysis fit indices showed that the correlated three-factor model provided a good fit with the data as demonstrated by the Bentler's Comparative Fit Index of 0.95 and the Bentler and Bonnett's Nonnormed Index of 0.92. On the KEPI, participants rate each item using a response scale from 1=lowest to 4=highest. KEPI has been used to measure levels of cultural competence among oral health care providers including students, faculty, and residents.

The KEPI is a relatively new measure. Thus, in this study, we were interested in knowing whether

there was a relationship among four types of measures: ethical sensitivity, racial and social class stereotypes, and cultural competence for first-year, first-semester dental students. The aims of this study were to identify the factor structure of the Deamonte Driver Survey and to determine the relationship between that survey (a measure of social class stereotyping), the DIT2 (a measure of ethical sensitivity), the CoBRAS (a measure of racial stereotyping), and the KEPI (a measure of cultural competence).

Methods

The University of Florida's Institutional Review Board approved the study (#2010-U-1071). An exploratory factor analysis (EFA) was run on a retrospective data set of 772 Florida dentists who took the Deamonte Driver, a scale comprised of 17 items, to identify the factors. The EFA was conducted using the FACTOR procedure in SAS. Initial estimates of commonalities were based on squared multiple correlation (R^2) between each variable and all other variables. Oblique rotation was selected, which allowed factors to correlate. Estimates were obtained using the maximum likelihood method. The EFA resulted in a three-factor solution based on the eigenvalue greater than 1.00 rule. Internal consistencies for each factor were computed (Table 1).

Participants in this study were a total of 245 first-year dental students in the Classes of 2016 ($n=65$), 2017 ($n=92$), and 2018 ($n=88$) at the University of Florida. Females (58%; 143), males (42%; 102), and underrepresented minorities (URM) (39%; 92) comprised the sample. The average age was 24.0 years, and the majority were single (80%; 190), were U.S. citizens (94%; 200), and spoke English as their first language (83%; 178). To be included in the analysis, participants had to have taken one of the four measures. In the Class of 2016, 59 took the KEPI, and 49 took both the DIT2 and the CoBRAS. The Deamonte Driver was not administered to this group of students. In the Class of 2017, 91 took the KEPI, 92 took both the DIT2, 80 completed the CoBRAS, and 86 took the Deamonte Driver. In the Class of 2018, 88 took the KEPI, while 87 took the DIT2 and 80 the CoBRAS and the Deamonte Driver.

Year, age, gender, race, marital status, political affiliations including humanitarian liberalism, religious orthodoxy, and political liberalism, U.S./non-U.S. citizenship, and English as a first language were the descriptor/explanatory variables. Spear-

Table 1. Factor analysis results (n=772)

Item #	Item	Factor	Standardized Regression Coefficients		
1	If I become a Medicaid provider, I could help prevent tragedies like the death of Deamonte Driver.	2	25	1	6
2	Medicaid-enrolled children are more likely to be non-compliant than other patients in my practice.	1	-1	76	0
3	Medicaid patients frequently cancel appointments.	1	1	76	-7
4	My self-pay patients would not like being in a waiting room with Medicaid patients.	1	-3	28	30
5	I lack the cultural sensitivity to treat minority patients.	3	-13	-5	44
6	I cannot financially afford to treat Medicaid patients.	2	-16	12	8
7	We live in a free market economy, so I am not obliged to provide dental care to the poor.	2	-27	10	23
8	Developing new workforce models such as a pediatric oral health therapist is a good way for dentistry to fulfill its professional obligation to care for the oral health of all children.	3	27	-11	34
9	I needed better education in dental school to prepare me to address oral health disparities in poor and minority patients.	3	5	-5	52
10	Providing dental care to the needy is my ethical and professional obligation.	2	26	1	-23
11	Other dentists will think less of me if they know I see Medicaid patients.	3	1	13	45
12	I would never turn any patient away regardless of his or her background or socio-economic status.	2	22	6	-16
13	The dental needs of Medicaid patients are more difficult to treat than other patients in my office.	3	-1	22	35
14	Many parents with children on Medicaid make the wrong choices about the oral health needs of their children.	1	-2	50	6
15	The traditional model of dental private practice adequately addresses the oral health needs of underserved patients.	2	-15	8	-15
16	Access to general health care is a right of all people.	2	95	1	0
17	Access to oral health care is a right of all people.	2	96	1	-1

Factors: 1=Medicaid Stereotypes, Alpha=0.67; 2=Access to Care, Alpha=0.61; 3=Attitudes Toward Underserved, Alpha=0.35
 Note: Values are multiplied by 100 and rounded to the nearest integer.

man correlational testing was used to examine the bivariate relationships among numeric measures, and t-tests were used to examine the bivariate relationships between dichotomous explanatory variables and numeric measures. All analyses were conducted using SAS Version 9.3 (Cary, NC, USA) using a 0.05 level of significance and two-sided testing.

Results

Factor Structure of Deamonte Driver Survey

A three-factor solution of the Deamonte Driver (Medicaid stereotypes, access to care, and attitudes toward underserved) with 17 items was identified. Internal reliability estimates (0.67, 0.61, and 0.35, respectively) were moderate to low. Four items comprised the Medicaid stereotypes subscale. Eight items comprised the access to care subscale, while five

items comprised the attitudes toward underserved subscale. Even though the reliability estimates were not strong, the items were similar according to face validity.

Correlational Analysis

There were significant relationships between DIT2 subscales and CoBRAS factors. There were also significant relationships between the Deamonte Driver subscales and CoBRAS factors.

Relationships between DIT2 and CoBRAS.

The MN subscale of the DIT2 was significantly associated with the CoBRAS Factor 1, racial privilege (p=0.001). The MN subscale of the DIT2 was significantly associated with the CoBRAS Factor 2, institutional discrimination (p=0.013). The PC subscale of the DIT2 was significantly associated with the CoBRAS Factor 1, racial privilege (p=0.012). The PC subscale of the DIT2 was significantly associated with the CoBRAS Factor 2, institutional discrimination (p=0.042) (Table 2).

Relationships between the Deamonte Driver and CoBRAS. The Deamonte Driver Medicaid stereotypes subscale was significantly associated with the CoBRAS Factor 2, institutional discrimination ($p<0.0001$). The Deamonte Driver Medicaid stereotypes subscale was significantly associated with the CoBRAS Factor 3, blatant racial issues ($p=0.047$). The Deamonte Driver access to care subscale was significantly and negatively associated with the CoBRAS Factor 2, institutional discrimination ($p<0.0001$). The Deamonte Driver access to care subscale was significantly and negatively associated with the CoBRAS Factor 3, blatant racial issues ($p<0.0001$). The Deamonte Driver attitudes toward underserved subscale was significantly and negatively associated with the CoBRAS Factor 1, racial privilege ($p=0.003$). The Deamonte Driver attitudes toward underserved subscale was significantly and positively associated with the CoBRAS Factor 2, institutional discrimination ($p=0.019$). No significant relationships were observed between the KEPI and the DIT2, Deamonte Driver, or CoBRAS or between the DIT2 and the Deamonte Driver.

Relationships by exploratory variables and test measures. Males scored significantly higher than females on Factor 2, institutional discrimination (23.39 vs. 26.21; $p=0.001$), and Factor 3, blatant racial issues, of the CoBRAS (15.96 vs. 17.86; $p=0.003$) (Table 3). Compared to non-URM students, URM students scored significantly lower on all three CoBRAS subscales: Factor 1, racial privilege, 30.37 vs. 27.85 ($p=0.005$); Factor 2, institutional discrimination, 26.92 vs. 21.08 ($p<0.0001$); and Factor 3, blatant racial issues, 17.66 vs. 15.25 ($p=0.0001$). URM students scored significantly lower on the Deamonte Driver Medicaid stereotypes subscale (13.65 vs. 15.05; $p=0.042$) and significantly higher on the Deamonte Driver access to care subscale (44.41 vs. 41.91; $p=0.0234$) compared to non-URM students.

Females scored significantly lower than males (13.88 vs. 15.20; $p=0.050$) on the Medicaid stereotypes subscale of the Deamonte Driver. Those who spoke English as first language had a significantly lower mean score of 14.75 on attitudes toward underserved compared to those for whom it was not (16.81; $p=0.026$) (Table 4). Those without U.S.

Table 2. Correlations among instrument subscales

Scale/Subscale	KEPI Knowledge of Diversity	KEPI Culture-Centered Practice	KEPI Efficacy of Assessment	CoBRAS F1	CoBRAS F2	CoBRAS F3	DIT2 PI	DIT2 MN	DIT2 PC	DIT2 N2
CoBRAS Racial privilege	-0.02 0.81	-0.06 0.40	0.02 0.81	-	-	-	-	-	-	-
CoBRAS Institutional discrimination	-0.05 0.45	-0.07 0.30	-0.05 0.49	-	-	-	-	-	-	-
CoBRAS Blatant racial issues	-0.07 0.31	-0.04 0.60	-0.02 0.82	-	-	-	-	-	-	-
DIT2 PI	0.07 0.34	0.02 0.75	-	-0.03 0.66	0.03 0.64	0.01 0.84	-	-	-	-
DIT2 MN	-0.08 0.23	-0.07 0.32	0.04 0.60	0.22 0.00	0.17 0.01	0.11 0.10	-	-	-	-
DIT2 PC	-0.04 0.51	-0.04 0.58	-0.07 0.31	-0.17 0.01	-0.14 0.04	-0.12 0.09	-	-	-	-
DIT2 N2	-0.023 0.73	-0.03 0.61	-0.06 0.33	-0.11 0.10	-0.13 0.07	-0.06 0.38	-	-	-	-
Deamonte Driver Medicaid stereotypes	-0.13 0.099	-0.07 0.35	-0.01 0.901	-0.10 0.18	0.36 <0.0001	0.15 0.05	0.09 0.26	0.03 0.69	-0.10 0.21	-0.10 0.22
Deamonte Driver Access to care	0.12 0.13	0.14 0.07	0.08 0.30	-0.03 0.70	-0.36 <0.0001	-0.30 <0.0001	-0.02 0.84	-0.091 0.23	0.03 0.73	0.00 0.96
Deamonte Driver Attitudes toward underserved	-0.15 0.05	-0.13 0.09	-0.05 0.49	-0.23 0.00	0.181 0.02	0.10 0.18	0.08 0.3045	-0.05 0.49	0.02 0.82	0.02 0.76

Table 3. Relationships between instrument subscales and gender, underrepresented minority (URM), and marital status, by mean (SD)

Scale/Subscale	Gender			URM			Marital Status		
	Female	Male	p-value	No	Yes	p-value	Not Single	Single	p-value
KEPI									
Knowledge of diversity	3.26 (0.44)	3.27 (0.40)	0.84	3.24 (0.44)	3.30 (0.39)	0.30	3.27 (0.46)	3.26 (0.42)	0.91
Culture-centered practice	2.22 (0.58)	2.27 (0.63)	0.51	2.19 (0.60)	2.32 (0.60)	0.10	2.27 (0.70)	2.23 (0.58)	0.70
Efficacy of assessment	2.67 (0.59)	2.69 (0.63)	0.83	2.66 (0.62)	2.73 (0.58)	0.39	2.66 (0.67)	2.69 (0.59)	0.84
CoBRAS									
Racial privilege	29.50 (6.06)	29.11 (6.74)	0.67	30.37 (5.99)	27.85 (6.40)	0.01	30.28 (6.56)	28.99 (6.29)	0.27
Institutional discrimination	23.39 (6.65)	26.21 (5.90)	<0.0001	26.92 (6.07)	21.08 (5.01)	<0.0001	25.27 (6.24)	24.21 (6.41)	0.38
Blatant racial issues	15.96 (4.26)	17.86 (4.77)	<0.0001	17.66 (4.59)	15.25 (4.10)	0.0001	16.49 (4.64)	16.69 (4.55)	0.81
DIT2									
PI	23.73 (12.67)	26.08 (12.38)	0.17	24.040 (13.27)	25.26 (11.62)	0.48	22.63 (11.06)	25.19 (12.91)	0.24
MN	33.34 (30.91)	33.90 (31.09)	0.76	33.75 (14.87)	32.96 (12.20)	0.67	40.74 (13.58)	31.85 (13.48)	<0.0001
PC	37.93 (15.65)	34.26 (14.78)	0.08	37.37 (15.72)	35.49 (15.45)	0.39	30.11 (13.10)	37.84 (15.74)	<0.0001
N2	36.26 (14.51)	32.41 (14.99)	0.06	36.09 (15.47)	32.81 (14.21)	0.11	30.28 (14.29)	35.59 (15.01)	0.04
Deamonte Driver									
Medicaid stereotypes	13.88 (4.63)	15.20 (14.24)	0.05	15.056 (4.04)	13.658 (4.80)	0.04	14.84 (4.25)	14.34 (4.50)	0.56
Access to care	43.72 (7.06)	42.06 (7.15)	0.13	41.91 (6.32)	44.41 (7.82)	0.02	43.23 (7.06)	42.94 (7.15)	0.84
Attitudes toward underserved	15.167 (4.28)	15.08 (4.32)	0.90	14.90 (3.73)	15.42 (4.88)	0.43	13.97 (3.89)	15.38 (4.35)	0.08

citizenship had a significantly higher mean score of 46.90 compared to those with U.S. citizenship (42.60; $p=0.004$) on the access to care subscale of the Deamonte Driver. Participants who were single had higher mean scores on PC and N2 of the DIT2 and lower mean scores on PI than non-single participants. Singles had a mean score of 37.84 compared to 30.105 for non-single students ($p=0.002$) on PC and a mean score of 35.59 compared to 30.28 ($p=0.044$) on N2. Singles had a mean score of 31.85 on PI compared to 40.74 for non-single participants ($p=0.001$). Those with U.S. citizenship had a mean of 2.67 higher on the efficacy of assessment KEPI subscale than non-U.S. citizens (2.29; $p=0.001$). Age was significantly and negatively associated with scores on Factor 3, blatant racial issues, of the CoBRAS ($p=0.029$).

There were several significant associations between political stance and the CoBRAS, DIT2,

and Deamonte Driver subscales (Table 5). Humanitarian liberalism was significantly though negatively associated with Factor 1, racial privilege ($p=0.002$), and Factor 3, blatant racial issues ($p=0.029$), of the CoBRAS. Religious orthodoxy was significantly, though negatively associated, with Factor 2, institutional discrimination ($p=0.026$). Political liberalism was significantly and positively associated with Factor 1, racial privilege ($p<0.0001$); Factor 2, institutional discrimination ($p<0.0001$); and Factor 3, blatant racial issues ($p<0.0001$).

Humanitarian liberalism was significantly and positively associated with DIT2 subscales PI ($p=0.0001$), PC ($p=0.0002$), and N2 ($p=0.005$), although negatively associated with MN ($p<0.0001$). Religious orthodoxy was significantly and positively associated with MN ($p=0.0004$). Religious orthodoxy was significantly and negatively associated with PC

Table 4. Relationships between instrument subscales and English as first language and U.S. citizenship status, by mean (SD)

Scale/Subscale	English as First Language			U.S. Citizen Status		
	No	Yes	p-value	No	Yes	p-value
KEPI						
Knowledge of diversity	3.25 (0.40)	3.26 (0.43)	0.90	3.21 (0.37)	3.26 (0.43)	0.64
Culture-centered practice	2.23 (0.68)	2.12 (0.56)	0.67	2.13 (0.63)	2.19 (0.58)	0.73
Efficacy of assessment	2.58 (0.64)	2.65 (0.60)	0.53	2.28 (0.28)	2.67 (0.62)	0.01
CoBRAS						
Racial privilege	28.18 (6.32)	29.65 (6.32)	0.22	28.62 (5.36)	29.44 (6.41)	0.61
Institutional discrimination	23.18 (6.44)	25.11 (6.52)	0.12	24.62 (6.69)	24.80 (6.55)	0.93
Blatant racial issues	17.58 (4.15)	16.63 (4.68)	0.25	17.77 (6.04)	16.70 (4.50)	0.54
DIT2						
PI	22.22 (9.76)	25.08 (12.83)	0.13	29.08 (12.82)	24.26 (12.35)	0.21
MN	37.11 (14.80)	32.69 (13.67)	0.10	34.00 (12.08)	33.44 (14.09)	0.88
PC	34.89 (13.63)	37.03 (15.79)	0.41	29.38 (13.65)	37.23 (15.45)	0.07
N2	32.42 (12.55)	35.51 (15.22)	0.20	27.37 (13.56)	35.55 (14.81)	0.05
Deamonte Driver						
Medicaid stereotypes	14.72 (4.47)	14.43 (4.47)	0.75	14.10 (4.56)	14.51 (4.48)	0.79
Access to care	44.56 (7.14)	42.44 (7.03)	0.14	46.90 (3.57)	42.60 (7.19)	<0.001
Attitudes toward underserved	16.81 (4.62)	14.75 (4.18)	0.03	15.10 (4.89)	15.13 (4.32)	0.99

($p=0.011$) and N2 ($p=0.0009$). Political liberalism was significantly and positively associated with MN ($p=0.002$). Religious orthodoxy was significantly and positively associated with access to care of the Deamonte Driver ($p=0.001$).

Testing for the difference between the sample and the normative values for the KEPI, CoBRAS, DIT2, and the Deamonte Driver showed that there were statistically significant differences for all the subscales with the exception of the KEPI's knowledge of diversity and the maintaining norms of the DIT2 (Table 6). These findings point to important differences that characterize the sample compared to norms. Participants in this study scored significantly lower (2.24, $SD=0.6$) on the culture-centered practice compared to the national norm of 2.42 ($SD=0.6$) ($p<0.0001$). The mean score of the participants was significantly lower (2.68, $SD=0.6$) on efficacy of assessment subscale of the KEPI, compared to the national norm of 2.85 ($SD=0.5$) ($p<0.0001$), indicating that this sample of participants was less culturally competent than the national norm.

Compared to the norm, participants showed statistically significantly higher racial privilege (29.34, $SD=6.33$) compared to 26.09 ($SD=6.68$) ($p<0.0001$). They also had statistically higher institutional discrimination at 24.53 ($SD=6.50$) compared to 23.12 ($SD=6.84$) ($p=0.0018$) and statistically higher blatant

racial issues at 16.73 ($SD=4.56$) compared to 14.88 ($SD=5.29$) ($p<0.0001$). Overall, the participants demonstrated statistically higher levels of color-blind racial attitudes as indicated by measures of racial privilege, institutional discrimination, and blatant racial issues. Compared to normative values, the participants' mean scores were statistically higher on personal interests (24.72, $SD=12.58$ vs. 20.61, $SD=11.46$; $p<0.0001$) where decisions that promote self-interest were the primary guidance. Participants had statistically significant lower scores on the post-conventional (PC) and N2 dimensions, again suggesting that they were not using higher levels of ethical decision making compared to the normative group. Research on the DIT2 has found that personal interest (PI) is representative of a low level of ethical reasoning, while PC/N2 is the highest level of ethical reasoning.²⁵

Score ranges on the KEPI subscales had implications for practice and training. Scores from 3.5 to 3.8 suggested that participants were moderately skilled and needed minimal training. Scores from 3.0 to <3.5 indicated a need for moderate training. Scores from 2.5 to <3.0 indicated a need for more intense training. Scores <2.5 suggested a need for the highest level of training. Scores on the KEPI subscales found in this study indicated that participants needed moderate training on knowledge

Table 5. Correlations with corresponding p-values between instrument subscales and age, humanitarian liberalism, religious orthodoxy, and political liberalism

Scale/Subscale	Age	Humanitarian Liberalism	Religious Orthodoxy	Political Liberalism
KEPI				
Knowledge of diversity	0.09	0.13	<0.0001	-0.08
	0.22	0.06	0.99	0.23
Culture-centered practice	0.07	0.05	0.01	-0.06
	0.32	0.50	0.95	0.42
Efficacy of assessment	-0.01	-0.04	-0.04	0.01
	0.83	0.53	0.59	0.88
CoBRAS				
Racial privilege	-0.08	-0.21	0.05	0.29
	0.28	<0.0001	0.43	<0.0001
Institutional discrimination	-0.06	0.02	-0.15	0.28
	0.41	0.77	0.03	<0.0001
Blatant racial issues	-0.16	-0.16	-0.05	0.32
	0.03	0.012	0.47	<0.0001
DIT2				
PI	0.08	0.23	0.01	-0.05
	0.24	<0.0001	0.98	0.42
MN	0.04	-0.45	0.24	0.21
	0.58	<0.0001	<0.001	<0.001
PC	-0.09	0.25	-0.17	-0.11
	0.20	<0.0001	0.01	0.11
N2	-0.11	0.19	-0.22	-0.05
	0.12	<0.0001	<0.0001	0.44
Deamonte Driver				
Medicaid stereotypes	0.04	0.02	-0.04	0.01
	0.65	0.81	0.58	0.96
Access to care	0.14	0.06	0.25	-0.11
	0.07	0.43	0.001	0.15
Attitudes toward underserved	-0.08	-0.03	0.01	-0.01
	0.29	0.69	0.99	0.92

of diversity, more intense training on efficacy of assessment, and the highest level of training on culture-centered practice.

Discussion and Conclusion

The aims of this study were to identify the factor structure of the Deamonte Driver Survey and determine the relationship between the Deamonte Driver, the DIT2, the CoBRAS, and the KEPI. Analysis of the Deamonte Driver revealed a three-factor solution comprised of subscales labeled Medicaid stereotypes, access to care, and attitudes toward underserved. All of the subscales had moderate to low estimates of internal consistency, suggesting that this scale was not measuring unique subconstructs. Differences due to gender, majority/URM status, marital status, citizenship, age, and political stance were observed.

Related to the Deamonte Driver, URM and female students scored significantly lower on the Medicaid stereotypes subscale, suggesting that they held more positive attitudes toward treating dental Medicaid patients than male and non-URM students. URM students, females, and non-U.S. citizens also scored significantly higher on the Deamonte Driver access to care subscale, demonstrating their recognition of social responsibility and willingness to treat dental Medicaid patients. Participants who ascribed to religious orthodoxy scored significantly higher on the Deamonte Driver access to care subscale, suggesting that they had a sense of social responsibility and willingness to treat dental Medicaid patients. Overall significant associations were observed on Deamonte Driver subscales due to gender, URM/majority affiliation, U.S. citizenship, and political stance.

Related to the DIT2, single individuals and liberals had higher levels of PI, PC, and N2 and lower levels of PI and lower MN scores compared

Table 6. Comparison of sample to normative values

Measure	Cronbach's Alpha	Sample Mean (SD)	Normative Mean (SD)	p-value
KEPI				
Knowledge of diversity	0.80	3.26 (0.42)	3.30 (0.50)	0.18
Culture-centered practice	0.79	2.24 (0.60)	2.42 (0.60)	<0.0001
Efficacy of assessment	0.91	2.68 (0.60)	2.85 (0.50)	<0.0001
CoBRAS				
Racial privilege	0.74	29.34 (6.33)	26.09 (6.68)	<0.0001
Institutional discrimination	0.72	24.53 (6.50)	23.12 (6.84)	0.002
Blatant racial issues	0.63	16.73 (4.56)	14.88 (5.29)	<0.0001
DIT2				
PI	N/A	24.72 (12.58)	20.61 (11.46)	<0.0001
MN	N/A	33.58 (13.85)	34.07 (14.36)	0.60
PC	N/A	36.39 (15.37)	41.06 (15.22)	<0.0001
N2	N/A	34.64 (14.81)	41.33 (14.57)	<0.0001
Deamonte Driver				
Medicaid stereotypes	0.72	14.42 (4.44)	19.02 (5.18)	<0.0001
Access to care	0.73	43.03 (7.12)	30.52 (7.90)	<0.0001
Attitudes toward underserved	0.43	15.13 (4.28)	9.09 (3.70)	<0.0001

Note: CoBRAS values are based on averages across four samples as shown in Table 2 of Neville HA, Lilly RL, Duran G, et al. Construction and initial validation of the color-blind racial attitudes scale (CoBRAS). *J Couns Psychol* 2000;47(1):59-70.

to non-single individuals. Conservatives had higher scores on MN compared to liberals. Participants who were religious orthodox had higher MN scores and lower PC and N2 scores compared to liberals. No differences on DIT2 subscales were observed due to gender, age, English as a first language, or U.S. citizenship.

Related to the CoBRAS, males showed higher levels of institutional discrimination and blatant racial issues compared to females. URM students scored lower than majority students on all three CoBRAS subscales. Consistent with Neville et al.'s study, female and URM students overall were less likely to demonstrate negative racial attitudes.²⁴ No differences on CoBRAS subscales were observed due to age, marital status, English as a first language, or U.S. citizenship. Related to the KEPI, U.S. citizens had higher levels of competence on the efficacy of assessment subscale than non-U.S. citizens.

These findings provide evidence of the importance of developing curriculum materials and highlight the importance of faculty members' considering what more they can do to reduce the racialized attitudes of dental students, particularly males and racial majority students. To influence students' attitudes and broaden their awareness, interventions such as interprofessional education, service-learning, and community-based education

can be implemented. The use of reflective writing to catalyze introspection^{21,30} and case-based analysis may also be helpful.

In our study, age was also indirectly associated with blatant racial attitudes, suggesting that those who were younger were less likely to hold negative racial attitudes. This observation raises a concern about the inherent challenges associated with trying to reshape attitudes that may need to be directed among the faculty who teach students. A comparison of political stances and CoBRAS subscales supports the view that individuals who ascribe to liberal views are more likely than conservatives to have lower levels of racial privilege and blatant racial attitudes, while those who ascribe to religious orthodoxy are less likely to have high levels of institutional discrimination. Complementing these findings is the observation that conservatives were more likely to have higher levels of racial privilege and blatant racial attitudes than liberals and higher levels of institutional discrimination than those who were religious orthodox. Perhaps these beliefs are products of formative socialization. Whether such attitudes are amenable to change is beyond the scope of this study. The lack of significant relationships among the Deamonte Driver, DIT2, CoBRAS subscales, and KEPI subscales suggested that the KEPI was measuring a unidimensional construct.

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